

GRADUATE AG RESEARCH SPOTLIGHT



Christie Eissler

"This research isn't just putting together a puzzle; it's a scavenger hunt for the puzzle pieces."

- Christie Eissler, Ph.D. candidate, Department of Biochemistry

THE STUDENT: Christie Eissler thought she might become a crime scene investigator or medical examiner, until experience in the Lake County coroner's office as an undergraduate at Northern Illinois University convinced her otherwise. But Eissler, who grew up in the Chicago suburb of Lindenhurst, remained committed to science. "I've always been interested in how life happens and in understanding life at the cellular level," she says. After graduating from NIU with a biological sciences degree in December 2006, she did analytical chemistry work until enrolling in Purdue the following August. "My undergraduate biochemistry professor received his Ph.D. from Purdue," she says. "I loved his teaching style, so naturally that put Purdue on my radar." Once on campus, Eissler rotated through four different labs before joining that of Mark Hall, associate professor of biochemistry. She is preparing to defend her thesis in late November and to graduate in December. A competitive Bilsland Dissertation Assistantship essentially funded her last semester and allowed her to focus on writing her dissertation.

THE RESEARCH: Eissler studies cell cycle regulation and specifically a mechanism called phosphorylation, which causes cells to enter the cycle to divide and form the next generation. "Enzymes modify proteins in cells, signaling them to turn a function on or off," she explains. Using mass spectrometry, Eissler quantitatively monitors changes in the phosphorylation

status at individual sites on proteins throughout the cell cycle. "It's important to understand how cells should function when they encounter damage, such as disease," she says. "In tumors, for example, cells are missing a signal and don't know when to stop dividing." The work may lead to therapeutics that could restore a cell to its original state.

LEARNING FROM MISTAKES: Eissler credits Hall with helping her develop critical thinking skills. "You have to learn to make mistakes on your own," she says. "There's a thought process in your mistakes—how to test, what you learn, what to do next. He knows when to let me figure it out and when to intervene." Hall's guidance, a close-knit department, and access to state-of-the-art instrumentation have made Purdue "a great learning experience," she says.

WEST COAST BOUND: Eissler has accepted a post-doctoral research position at the Ludwig Institute for Cancer Research at the University of California-San Diego. The institute's focus on cancer genetics, cell signaling, gene regulation and the mechanisms of cell division—as well as the opportunity to continue using mass spectrometry—make the position a good fit. Less fitting, however, is Eissler's uncommon hobby of shopping for blue jeans; the hundred or so pairs she has amassed will be less suited to sunny southern California, she admits wryly.